

Listing of Claims:

1. (Currently Amended) An apparatus ~~for surface treatment of metallic sheet~~ comprising:

at least one centrifugal blasting machine for blasting solid particles having a mean particle diameter of 30 to 300 μm against
5 a continuously traveling metallic sheet; ~~which continuously travels,~~

wherein said at least one centrifugal blasting machine ~~having~~ comprises a centrifugal rotor having a rotation axis, and ~~being the at least one centrifugal blasting machine is positioned so as the~~ such that a line of intersection ~~between the~~ of a plane ~~vertical perpendicular~~ to the rotation axis ~~and the~~ with a plane of the metallic sheet ~~to become parallel to or is at an angle in a range from 0° to 45° or less angle to the~~ with respect to a direction of travel of the metallic sheet; and

15 wherein the at least one centrifugal blasting machine is stationary.

2. (Currently Amended) The apparatus according to claim 1, wherein said at least one centrifugal blasting machine ~~has a~~ centrifugal rotor having a rotation axis, and is positioned ~~so as~~ such that the line of intersection ~~between the~~ of the plane ~~vertical perpendicular~~ to the rotation axis ~~and~~ with the plane of

the metallic sheet ~~to become~~ is at an angle in a range from 5° to 45° with respect to the direction of travel of the metallic sheet.

3. (Currently Amended) The apparatus according to claim 1, wherein said at least one centrifugal blasting machine ~~has a centrifugal rotor having a rotation axis, and is positioned so as~~ such that the line of intersection ~~between~~ of the plane ~~vertical~~ perpendicular to the rotation axis ~~and~~ with the plane of the metallic sheet ~~to become~~ is parallel to the direction of travel of the metallic sheet.

4. (Currently Amended) The apparatus according to claim 1, wherein said at least one centrifugal blasting machine comprises: at least one said centrifugal blasting machine positioned ~~so as~~ such that the line of intersection ~~between~~ of the plane ~~vertical~~ perpendicular to the rotation axis ~~and~~ with the plane of the metallic sheet ~~to become~~ is parallel to the direction of travel of the metallic sheet; [[,]] and

at least one said centrifugal blasting machine positioned ~~so as~~ such that the line of intersection ~~between~~ of the plane ~~vertical~~ perpendicular to the rotation axis ~~and~~ with the plane of the metallic sheet ~~to become~~ is at an angle in a range from

5° to 45° with respect to the direction of travel of the metallic sheet.

5. (Currently Amended) The apparatus according to claim 1, wherein said at least one centrifugal blasting machine comprises a plurality of said centrifugal blasting machines arranged ~~in the~~ along a width direction of the metallic sheet; ~~[[,]]~~ and

5 wherein at least two ~~centrifugal blasting machines among of~~ the plurality of centrifugal blasting machines are positioned ~~so~~ as such that the line respective lines of intersection ~~between of~~ the ~~plane vertical~~ planes perpendicular to the rotation ~~axis~~ axes of the centrifugal ~~rotor and~~ rotors of said at least two of the plurality of centrifugal blasting machines with the plane of the metallic sheet are ~~to become~~ parallel to each other.

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6. (Currently Amended) The apparatus according to claim 1, wherein the at least one centrifugal blasting machine comprises a plurality of said centrifugal blasting machines arranged ~~in the~~ along a width direction of the metallic sheet; ~~[[,]]~~ and

5 the respective centrifugal rotors of at least two of the plurality of centrifugal blasting machines ~~among the plurality of~~ ~~centrifugal blasting machines~~ are driven by ~~the a~~ common driving shaft ~~at the respective centrifugal rotors thereof.~~

7. (Currently Amended) A method ~~for producing metallic sheet~~ comprising: ~~the step of~~

5 applying surface treatment to a continuously traveling metallic sheet by blasting solid particles having a mean particle diameter of 30 to 300 μm against the metallic sheet using ~~the surface treatment apparatus for metallic sheet according to claim 1~~ at least one centrifugal blasting machine which comprises a centrifugal rotor having a rotation axis, and which is positioned such that a line of intersection of a plane
10 perpendicular to the rotation axis with a plane of the metallic sheet is at an angle in a range from 0 to 45° with respect to a direction of travel of the metallic sheet;

wherein the at least one centrifugal blasting machine is not moved while applying the surface treatment.

8. (Currently Amended) ~~An~~ The apparatus ~~for producing metallic sheet according to claim 1, further~~ comprising:

a hot-dip coating line ~~having a coating bath; the hot-dip coating line including~~ which comprises a coating bath and one of a cooling device ~~or~~ and an alloying furnace after the coating bath; and

wherein said at least one centrifugal blasting machine is the apparatus according to claim 1 being located at a downstream

side of said one of the cooling device ~~or~~ and the alloying furnace.

9. (Currently Amended) ~~Am~~ The apparatus for producing metallic sheet according to claim 1, further comprising:

a continuous annealing line having an annealing furnace; ~~and~~
wherein said at least one centrifugal blasting machine

5 ~~is the apparatus according to claim 1 being~~ located at
a downstream side of the annealing furnace.

10. (New) The apparatus according to claim 2, wherein said at least one centrifugal blasting machine is positioned such that the line of intersection of the plane perpendicular to the rotation axis with the plane of the metallic sheet is at an angle
5 in a range from 5° to 30° with respect to the direction of travel of the metallic sheet.

11. (New) The apparatus according to claim 5, wherein said at least two of the plurality of centrifugal blasting machines are positioned such that the respective lines of intersection of the planes perpendicular to the rotation axes of the centrifugal
5 rotors of said at least two of the plurality of centrifugal blasting machines with the plane of the metallic sheet are parallel to the direction of travel of the metallic sheet.

12. (New) The apparatus according to claim 5, wherein said
at least two of the plurality of centrifugal blasting machines
are positioned such that the respective lines of intersection of
the planes perpendicular to the rotation axes of the centrifugal
5 rotors of said at least two of the plurality of centrifugal
blasting machines with the plane of the metallic sheet are at an
angle in a range from 5° to 45° with respect to the direction of
travel of the metallic sheet.

13. (New) The apparatus according to claim 1, wherein said
10 at least one centrifugal blasting machine comprises:

a first plurality of said centrifugal blasting machines
which are arranged along a width direction of the metallic sheet,
and the respective centrifugal rotors of which are all driven by
a first common driving shaft; and

15 a second plurality of said centrifugal blasting machines
which are arranged along a width direction of the metallic sheet,
and the respective centrifugal rotors of which are all driven by
a second common driving shaft.

14. (New) The apparatus according to claim 13, wherein the
first and second pluralities of centrifugal blasting machines are
positioned such that the respective lines of intersection of the
planes perpendicular to the rotation axes of the centrifugal

5 rotors of the first and second pluralities of centrifugal
blasting machines with the plane of the metallic sheet are
parallel to the direction of travel of the metallic sheet.

15. (New) An apparatus comprising:

at least one centrifugal blasting machine for blasting solid
particles having a mean particle diameter of 30 to 300 μm against
a continuously traveling metallic sheet;

5 wherein said at least one centrifugal blasting machine
comprises a centrifugal rotor having a rotation axis, and the at
least one centrifugal blasting machine is positioned such that
a line of intersection of a plane perpendicular to the rotation
axis with a plane of the metallic sheet is at an angle in a range
10 from 5° to 45° with respect to a direction of travel of the
metallic sheet.

16. (New) The apparatus according to claim 15, wherein said
at least one centrifugal blasting machine is positioned such that
the line of intersection of the plane perpendicular to the
rotation axis with the plane of the metallic sheet is at an angle
in a range from 5° to 30° with respect to the direction of travel
of the metallic sheet.

17. (New) The apparatus according to claim 15, wherein the at least one centrifugal blasting machine is stationary.

18. (New) The apparatus according to claim 15, wherein said at least one centrifugal blasting machine comprises a plurality of said centrifugal blasting machines arranged along a width direction of the metallic sheet; and

5 wherein at least two of the plurality of centrifugal blasting machines are positioned such that the respective lines of intersection of the planes perpendicular to the rotation axes of said at least two of the plurality of centrifugal rotors with the plane of the metallic sheet are parallel to each other
10 and are at an angle in a range from 5° to 45° with respect to a direction of travel of the metallic sheet.

19. (New) The apparatus according to claim 15, wherein said at least one centrifugal blasting machine comprises:

 a first plurality of said centrifugal blasting machines arranged along a width direction of the metallic sheet; and

5 a second plurality of said centrifugal blasting machines arranged along a width direction of the metallic sheet at a position downstream from the first plurality of centrifugal blasting machines.

20. (New) The apparatus according to claim 19, wherein the first and second pluralities of centrifugal blasting machines are positioned such that the respective lines of intersection of the planes perpendicular to the rotation axes of the centrifugal
5 rotors of the first and second pluralities of centrifugal blasting machines with the plane of the metallic sheet are at an angle in a range from 5° to 45° with respect to the direction of travel of the metallic sheet.